Pentachlorobenzene

Chemical Information
CAS Number - 608-93-5
Alternate Names - 1,2,3,4,5-Pentachlorobenzene
General Uses - This chemical is used to make pentachloronitrobenzene, a fungicide. In addition, it has been and is currently used as a fire retardant.
Potential Hazards - Short-term exposure to this chemical can affect the central nervous system. Long-term exposure can affect the liver and kidneys and can cause tissue lesions.

Summary Analysis– Pentachlorobenzene

- In 2003, the 484,733 pounds of pentachlorobenzene comprised about 0.6 percent of the total quantity of PCs. Since 2000, there has been over a 100 percent increase in the quantity of pentachlorobenzene.
- Virtually the entire PC quantity of pentachlorobenzene was treated. In 2003, there was a dramatic increase in the recycling of pentachlorobenzene.
- Of the 5 facilities that reported pentachlorobenzene in 2003, 2 facilities accounted for over 92 percent of the total quantity.
- In 2003, almost 100 percent of the pentachlorobenzene was reported by facilities in Region 6. Three facilities in Louisiana reported over 93 percent of the total quantity.
- Five industry sectors reported this chemical in 2003. One facility in SIC 2812 (Alkalies and chlorine) reported 68 percent of the total quantity of pentachlorobenzene.

National Trends – Pentachlorobenzene. Exhibit 4.182 presents the total PC quantity (pounds) of pentachlorobenzene reported in 2000 to 2003, showing the disposal, treatment, energy recovery, as well as recycling quantities. Please note that data for 1999 is not included for pentachlorobenzene because this chemical only was reported to TRI beginning in 2000. In 2003, the 484,733 pounds of pentachlorobenzene comprised about 0.6 percent of the total quantity of PCs. There has been over a 100 percent increase in the quantity of pentachlorobenzene reported from 2000 to 2003. Since 2000, virtually the entire quantity of pentachlorobenzene was treated. In 2003, there was a dramatic increase in the recycling of pentachlorobenzene.

Exhibit 4. 182. National-Level Information for Pentachlorobenzene (2000-2003)

	2000	2001	2002	2003	Percent Change (2000-2003)	Management Method -- Percent of Quantity of this Chemical in 2003
Number of Facilities	5	4	6	5	0.0%	
Disposal Quantity (lbs.)	13	1	3	26	97.8%	0.0%
Energy Recovery Quantity (lbs.)	0	0	0	0	NA	0.0%
Treatment Quantity (lbs.)	239,838	487,718	311,153	484,707	102.1%	100.0%
Priority Chemical Quantity (lbs.)	239,852	487,719	311,156	484,733	102.1%	
Recycling Quantity (lbs.)	1	770	210	18,111	1811000.0%	

Exhibit 4.183 shows the number of facilities that reported pentachlorobenzene within various

quantity ranges. Of the 5 facilities that reported pentachlorobenzene in 2003, 2 facilities accounted for over 92 percent of the total quantity of this chemical.

Exhibit 4. 183. Distribution of Facilities that Reported Quantities for Pentachlorobenzene (2003)

Pentachlorobenzene (484,733 pounds)		
Quantity Reported	**Number of Facilities Reporting this quantity (2003)**	**Percent of Total Quantity for this Priority Chemical**
up to 10 pounds	0	0.0%
between 11 - 100 pounds	1	less than 0.1%
between 101 -1,000 pounds	0	0.0%
between 1,001 - 10,000 pounds	1	0.7%
between 10,001 - 100,000 pounds	1	6.9%
between 100,001 - 1 million pounds	2	92.4%
> 1 million pounds	0	0.0%

EPA Region Trends- Pentachlorobenzene. Exhibit 4.184 shows the quantity (pounds) of pentachlorobenzene reported by facilities in each EPA Region in 2000 to 2003. In 2003, almost 100 percent of the pentachlorobenzene was reported by facilities in Region 6. Less than 100 pounds was reported by a facility in Region 5. In Region 6, the quantity of pentachlorobenzene has increased more than 100 percent since 2000.

Exhibit 4. 184. Quantity of Pentachlorobenzene Reported by EPA Regions (2000-2003)

EPA REGION	2000	2001	2002	2003	Percent Change in Quantity (2000-2003)	Percent Of the Total Priority Chemical quantity (2003)
4	8	0	0	0	-100.0%	0.0%
5	76	66	103	93	22.4%	0.0%
6	239,768	487,483	310,983	484,640	102.1%	99.9%
8	0	170	70	0	NA	0.0%

In 2003, only 5 facilities in 2 EPA Regions reported pentachlorobenzene. Exhibit 4.185 shows how pentachlorobenzene was managed by these facilities in 2003. Almost 100 percent of the pentachlorobenzene was managed using treatment. The Region 5 facility sent their entire quantity of pentachlorobenzene to offsite treatment. Facilities in Region 6 used onsite treatment for most of their pentachlorobenzene. Most of the recycling of pentachlorobenzene was done onsite by facilities in Region 6.

Exhibit 4. 185. Management Methods for Pentachlorobenzene, By EPA Region (2003)

EPA Region	Disposal		Energy Recovery		Treatment		Recycling	
	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
5	0	0	0	0	0	93	0	0
6	22	3	0	0	483,971	643	18,111	0

State Trends- Pentachlorobenzene. Facilities in only 6 states reported a PC quantity of pentachlorobenzene in 2000-2003. In 2003, facilities in only 3 of these states reported this chemical (Exhibits 4.186 and 4.187). In 2003, 3 facilities in Louisiana reported over 93 percent of the total quantity of. A facility in Texas reported most of the remaining 7 percent, with an Illinois facility reporting less than 100 pounds. The Louisiana facilities reported an almost 300 percent increase of pentachlorobenzene since 2000, including more than a 93 percent increase since 2002. Since 2000, the Texas facility reported a decrease of about 72 percent in the quantity of pentachlorobenzene.

Exhibit 4. 186. State-Level Information for Pentachlorobenzene (2000-2003)

State	2000	2001	2002	2003	Change in Quantity (2000-2003)	Percent Change in Quantity (2000-2003)	Percent of Total Quantity of this Priority Chemical (2003)
Louisiana	118,629	407,918	233,271	451,249	332,620	280.4%	93.09%
Texas	121,138	79,565	77,701	33,391	-87,747	-72.4%	6.89%
Illinois	76	66	103	93	17	22.4%	0.02%
Arkansas	0	0	11	0	0	NA	0.00%
Colorado	0	170	70	0	0	NA	0.00%
Kentucky	8	0	0	0	-8	-100.0%	0.00%

Exhibit 4. 187. Distribution of Facilities Reporting Pentachlorobenzene in 2003 & Quantity of Pentachlorobenzene Reported in 2003 per state

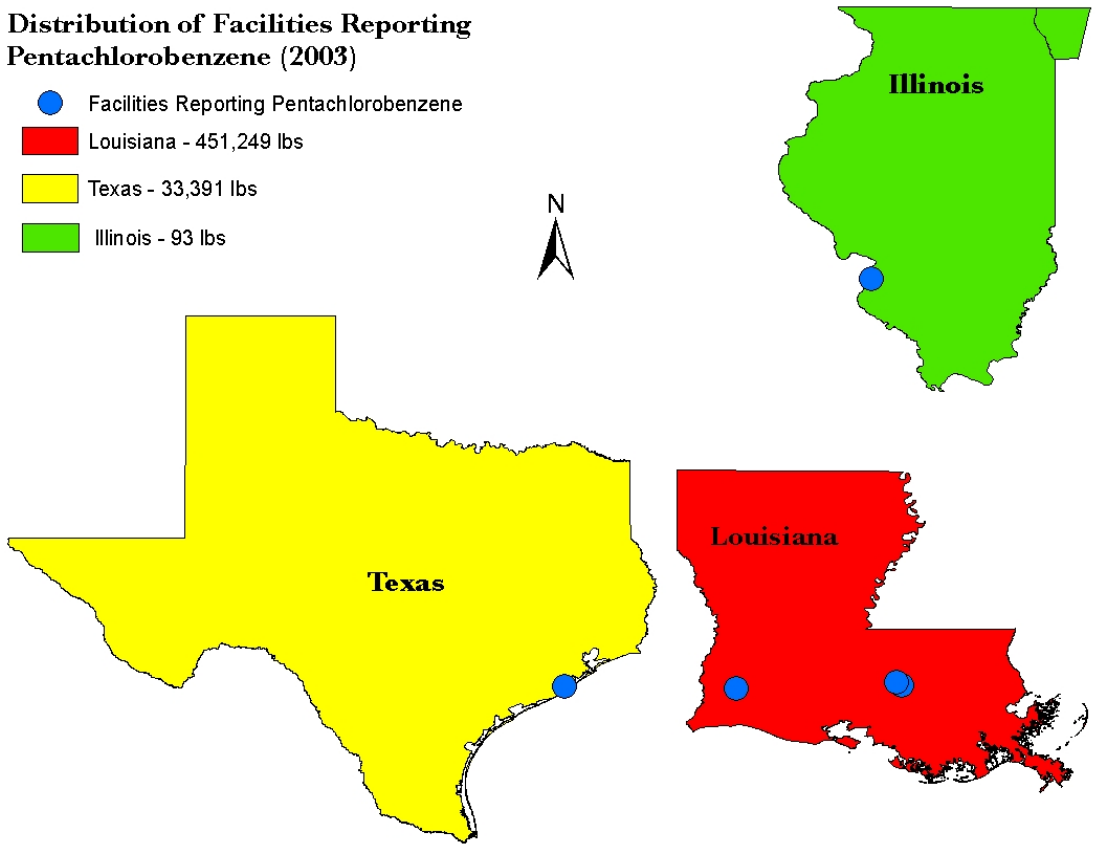

Exhibit 4.188 shows how pentachlorobenzene was managed by the 5 facilities in the 3 states that reported a quantity of this PC in 2003. Overall, most of the pentachlorobenzene was treated. Louisiana facilities primarily used onsite treatment. Likewise, the facility in Texas treated most of their pentachlorobenzene onsite. The Illinois facility relied on offsite treatment. Relatively small quantities of pentachlorobenzene were land disposed. In 2003, only the Texas facility reported recycling of this chemical.

Exhibit 4. 188. Management of Pentachlorobenzene in States (2003)

State	Total Priority Chemical Quantity (2003)	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
Louisiana	451,249	1	3	0	0	451,211	33	0	0
Texas	33,391	21	0	0	0	32,760	610	18,111	0
Illinois	93	0	0	0	0	0	93	0	0

Industry Sector (SIC) Trends- Pentachlorobenzene. Exhibit 4.189 shows the PC quantity (pounds) of pentachlorobenzene by 5 industry sectors (SIC codes) where facilities reported this chemical in 2003. The facility in SIC 2812 (Alkalies and chlorine) reported the highest quantity, accounting for 68 percent of the total PC quantity of pentachlorobenzene reported in 2003. Compared to the quantity reported by this facility in 2000, there was a 37.5 percent increase in quantity. Three facilities in SIC 2869 (Industrial organic chemicals, nec) reported 32 percent of the total quantity. A facility in SIC 2865 (Cyclic crudes and intermediates) reported less than 100 pounds.

The large increase that occurred in 2003 for the SIC 2869 facilities is misleading. For the 2003 reporting year, 2 facilities (1 in Louisiana, 1 in Texas) changed their primary SIC code from 2812 to 2869. The quantity of pentachlorobenzene reported by these two facilities accounted for almost 98 percent of the total quantity for this SIC in 2003.

Exhibit 4. 189. Industry Sector-Level Information for Pentachlorobenzene (2000-2003)

Primary SIC Code	SIC Description	Number of Facilities for this SIC Code (2003)	2000	2001	2002	2003	Change in Quantity (2000-2003)	Percent Change (2000-2003)	Percent of Total Quantity of this Priority Chemical (2003)
2812	Alkalies and chlorine	1	239,768	487,483	307,772	329,626	89,858	37.5%	68.0%
2869	Industrial organic chemicals, nec	3	8	0	3,200	155,014	155,006	1937578.8%	32.0%
2865	Cyclic crudes and intermediates	1	76	66	103	93	17	22.4%	0.0%
2819	Industrial inorganic chemicals, nec	0	0	170	70	0	0	NA	0.0%
9511	Air, water, and solid waste management	0	0	0	11	0	0	NA	0.0%

Exhibit 4.190 shows how pentachlorobenzene was managed by the 5 facilities in the 3 industry sectors that reported this PC in 2003. As noted above, in 2003, most of the pentachlorobenzene was treated. Nearly 100 percent of the pentachlorobenzene reported by facilities in SICs 2812 and 2869 was treated onsite. The facility in SIC 2865 sent their pentachlorobenzene to offsite treatment.

Exhibit 4. 190. Management of Pentachlorobenzene in Industry Sectors (SIC Codes) (2003)

Primary SIC Code	SIC Description	Total Priority Chemical Quantity	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2812	Alkalies and chlorine	329,626	0	3	0	0	329,589	33	0	0
2869	Industrial organic chemicals, nec	155,014	22	0	0	0	154,382	610	18,111	0
2865	Cyclic crudes and intermediates	93	0	0	0	0	0	93	0	0

Recycling. Exhibit 4.191 provides some indication of the extent to which facilities in certain industry sectors recycled at least 100 pounds of pentachlorobenzene in 1999-2003, rather than manage it as a waste. For those year(s), the facility did not report a PC quantity, i.e., a quantity managed via land disposal, energy recovery, or treatment.

Exhibit 4. 191. Facilities reporting Recycling but not a Priority Chemical quantity (1999-2003)

			1999		2000		2001		2002		2003	
Number of Facilities	EPA Region	State	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle
SIC 2819 --Industrial inorganic chemicals, nec												
2	8	Colorado	0	0	0	400	0	0	0	0	0	1,585